C 10

```
MMM         MMM  MMM         MMM     GGGGGGGGGGGG  TTTTTTTTTTTTTTT    SSSSSSSSSSSS  TTTTTTTTTTTTTTT
MMM         MMM  MMM         MMM     GGGGGGGGGGGG  TTTTTTTTTTTTTTT    SSSSSSSSSSSS  TTTTTTTTTTTTTTT
MMM         MMM  MMM         MMM     GGGGGGGGGGGG  TTTTTTTTTTTTTTT    SSSSSSSSSSSS  TTTTTTTTTTTTTTT
MMMMMM   MMMMMM  MMMMMM   MMMMMM  GGG                    TTT       SSS                    TTT
MMMMMM   MMMMMM  MMMMMM   MMMMMM  GGG                    TTT       SSS                    TTT
MMMMMM   MMMMMM  MMMMMM   MMMMMM  GGG                    TTT       SSS                    TTT
MMM   MMM   MMM  MMM   MMM   MMM  GGG                    TTT       SSS                    TTT
MMM   MMM   MMM  MMM   MMM   MMM  GGG                    TTT       SSS                    TTT
MMM   MMM   MMM  MMM   MMM   MMM  GGG                    TTT       SSS                    TTT
MMM         MMM  MMM         MMM  GGG                    TTT          SSSSSSSSS           TTT
MMM         MMM  MMM         MMM  GGG                    TTT          SSSSSSSSS           TTT
MMM         MMM  MMM         MMM  GGG                    TTT          SSSSSSSSS           TTT
MMM         MMM  MMM         MMM  GGG   GGGGGGGGG        TTT                   SSS        TTT
MMM         MMM  MMM         MMM  GGG   GGGGGGGGG        TTT                   SSS        TTT
MMM         MMM  MMM         MMM  GGG   GGGGGGGGG        TTT                   SSS        TTT
MMM         MMM  MMM         MMM  GGG         GGG        TTT                   SSS        TTT
MMM         MMM  MMM         MMM  GGG         GGG        TTT                   SSS        TTT
MMM         MMM  MMM         MMM  GGG         GGG        TTT                   SSS        TTT
MMM         MMM  MMM         MMM     GGGGGGGGG           TTT       SSSSSSSSSSSS           TTT
MMM         MMM  MMM         MMM     GGGGGGGGG           TTT       SSSSSSSSSSSS           TTT
MMM         MMM  MMM         MMM     GGGGGGGGG           TTT       SSSSSSSSSSSS           TTT
```

```
_$

Va
---
00
00
7F
7F
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```

J 13

```
**FILE**ID**MMGXQUOTA



MM      MM  MM      MM    GGGGGGGG  XX      XX    QQQQQQ    UU      UU    OOOOOO    TTTTTTTTTT    AAAAAA
MM      MM  MM      MM    GGGGGGGG  XX      XX    QQQQQQ    UU      UU    OOOOOO    TTTTTTTTTT    AAAAAA
MMMM  MMMM  MMMM  MMMM  GG          XX      XX  QQ      QQ  UU      UU  OO      OO      TT      AA      AA
MMMM  MMMM  MMMM  MMMM  GG          XX      XX  QQ      QQ  UU      UU  OO      OO      TT      AA      AA
MM  MM  MM  MM  MM  MM  GG            XX  XX    QQ      QQ  UU      UU  OO      OO      TT      AA      AA
MM  MM  MM  MM  MM  MM  GG            XX  XX    QQ      QQ  UU      UU  OO      OO      TT      AA      AA
MM      MM  MM      MM  GG              XX      QQ      QQ  UU      UU  OO      OO      TT      AA      AA
MM      MM  MM      MM  GG              XX      QQ      QQ  UU      UU  OO      OO      TT      AA      AA
MM      MM  MM      MM  GG  GGGGGG    XX  XX    QQ  QQ  QQ  UU      UU  OO      OO      TT      AAAAAAAAAA
MM      MM  MM      MM  GG  GGGGGG    XX  XX    QQ  QQ  QQ  UU      UU  OO      OO      TT      AAAAAAAAAA
MM      MM  MM      MM  GG      GG  XX      XX  QQ    QQ    UU      UU  OO      OO      TT      AA      AA
MM      MM  MM      MM  GG      GG  XX      XX  QQ    QQ    UU      UU  OO      OO      TT      AA      AA      ....
MM      MM  MM      MM    GGGGGG    XX      XX    QQQQ  QQ  UUUUUUUUUU    OOOOOO        TT      AA      AA      ....
MM      MM  MM      MM    GGGGGG    XX      XX    QQQQ  QQ  UUUUUUUUUU    OOOOOO        TT      AA      AA      ....

LL            IIIIII      SSSSSSSS
LL            IIIIII      SSSSSSSS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II        SSSSSS
LL              II        SSSSSS
LL              II              SS
LL              II              SS
LL              II              SS
LL              II              SS
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

Table of contents

```
0000    ;
0000    ;               MEMORY MANAGEMENT SERVICES TEST #7
0000    ;
0000    ;
0000            .TITLE  MMGXQUOTA - TEST MMG SERVICES WITH LOW PGFLQUOTA
0000            .IDENT  'V04-000'
0000    ;
0000    ;****************************************************************************
0000    ;*                                                                          *
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0000    ;*                                                                          *
0000    ;*                                                                          *
0000    ;****************************************************************************
0000
0000    ;++
0000    ; FACILITY: USER MODE MEMORY MANAGEMENT SERVICES TEST
0000    ;
0000    ; ABSTRACT: THIS SET OF ROUTINES TESTS THE MEMORY MANAGEMENT SERVICES
0000    ;
0000    ; ENVIRONMENT: USER MODE DIAGNOSTIC
0000    ;
0000    ; AUTHOR: PETER H. LIPMAN       , CREATION DATE: 6-JAN-77
0000    ;
0000    ; MODIFIED BY:
0000    ;
0000    ;       V02-012 SHZ0008         Stephen Zalewski        20-Aug-1980
0000    ;               Added further tests to system services tested in this
0000    ;               program.  Also incorporated program into MMG test
0000    ;               package.
0000    ;
0000    ;       V02-012 TSC0007         Tom Clark               25-Jul-1980
0000    ;               Added further tests to system services tested in this
0000    ;               program.
0000    ;
```

```
0000                  .SBTTL  DECLARATIONS
0000          ;
0000          ; INCLUDE FILES:
0000          ;
0000                  .SBTTL  MACROS
0000          ;
0000          ; MACROS:
0000          ;
0000                  .MACRO  LIST
0000                  .LIST   MEB
0000                  .ENDM   LIST
0000
0000                  .MACRO  NLIST
0000                  .NLIST  MEB
0000                  .ENDM   NLIST
0000
0000                  .MACRO  READ SIZ=#1,ADR=(R2),?L1,?L2
0000                  IFNORD  <SIZ>,<ADR>,L1
0000                  BRB     L2
0000          L1:     MOVAL   W^READERR,R1
0000                  BSBW    PROBERR
0000          L2:
0000                  .ENDM   READ
0000
0000                  .MACRO  WRITE SIZ=#1,ADR=(R2),?L1,?L2
0000                  IFNOWRT <SIZ>,<ADR>,L1
0000                  BRB     L2
0000          L1:     MOVAL   W^WRITERR,R1
0000                  BSBW    PROBERR
0000          L2:
0000                  .ENDM   WRITE
0000
0000                  .MACRO  NOREAD SIZ=#1,ADR=(R2),?L1
0000                  IFNORD  <SIZ>,<ADR>,L1
0000                  MOVAL   W^NOREADERR,R1
0000                  BSBW    PROBERR
0000          L1:
0000                  .ENDM   NOREAD
0000
0000                  .MACRO  NOWRITE SIZ=#1,ADR=(R2),?L1
0000                  IFNOWRT <SIZ>,<ADR>,L1
0000                  MOVAL   W^NOWRITERR,R1
0000                  BSBW    PROBERR
0000          L1:
0000                  .ENDM   NOWRITE
0000
0000                  .MACRO  ADJWSL  PAGCNT,LIMIT=#0,WSETLM,STATUS=S^#SS$_NORMAL
0000                  LIST
0000                          MOVZWL  STATUS,R3
0000                          MOVL    PAGCNT,R4
0000                          MOVL    LIMIT,R5
0000                          .IF     B,WSETLM
0000                          .IF     DIF,<LIMIT>,<#0>
0000                          MOVAL   W^WRKSETLIM,R6
0000                          .IFF
0000                          CLRL    R6
0000                          .ENDC
```

```
0000                   .IFF
0000                   MOVAL    WSETLM,R6
0000                   .ENDC
0000                   BSBW     ADJWSLSUBR
0000          NLIST
0000          .ENDM    ADJWSL
0000
0000          .MACRO   EXPREG  PAGCNT,REGION=#0,STATUS=S^#SS$_NORMAL,-
0000                   RETADR=W^RETRANGE
0000          LIST
0000                   MOVZWL   STATUS,R3
0000                   MOVL     PAGCNT,R4
0000                   MOVAL    RETADR,R1
0000                   .IF      IDN,<REGION>,<#0>
0000                   CLRL     R5
0000                   .IFF
0000                   MOVL     REGION,R5
0000                   .ENDC
0000                   BSBW     EXPREGSUBR
0000          NLIST
0000          .ENDM    EXPREG
0000
0000          .MACRO   CNTREG  PAGCNT,REGION=#0,STATUS=S^#SS$_NORMAL,-
0000                   RETADR=W^RETRANGE
0000          LIST
0000                   MOVZWL   STATUS,R3
0000                   MOVL     PAGCNT,R4
0000                   MOVAL    RETADR,R1
0000                   .IF      IDN,<REGION>,<#0>
0000                   CLRL     R5
0000                   .IFF
0000                   MOVL     REGION,R5
0000                   .ENDC
0000                   BSBW     CNTREGSUBR
0000          NLIST
0000          .ENDM    CNTREG
0000
0000          .MACRO   LKWSET STARTVA,ENDVA,STATUS=S^#SS$_WASCLR,-
0000                            INADR=W^INRANGE,RETADR=W^RETRANGE
0000          LIST
0000                   .IF      NB,STARTVA
0000                   MOVL     STARTVA,W^INRANGE
0000                   .ENDC
0000                   .IF      NB,ENDVA
0000                   MOVL     ENDVA,W^INRANGE+4
0000                   .ENDC
0000                   MOVZWL   STATUS,R3
0000                   MOVAL    INADR,R0
0000                   MOVAL    RETADR,R1
0000                   BSBW     LKWSETSUBR
0000          NLIST
0000          .ENDM    LKWSET
0000
0000          .MACRO   ULWSET STARTVA,ENDVA,STATUS=S^#SS$_WASSET,-
0000                            INADR=W^INRANGE,RETADR=W^RETRANGE
0000          LIST
0000                   .IF      NB,STARTVA
```

```
0000                    MOVL    STARTVA,W^INRANGE
0000                    .ENDC
0000                    .IF     NB,ENDVA
0000                    MOVL    ENDVA,W^INRANGE+4
0000                    .ENDC
0000                    MOVZWL  STATUS,R3
0000                    MOVAL   INADR,R0
0000                    MOVAL   RETADR,R1
0000                    BSBW    ULWSETSUBR
0000            NLIST
0000            .ENDM   ULWSET
0000
0000            .MACRO  CRETVA STARTVA,ENDVA,STATUS=S^#SS$_NORMAL,-
0000                            INADR=W^INRANGE,RETADR=W^RETRANGE
0000            LIST
0000                    .IF     NB,STARTVA
0000                    MOVL    STARTVA,W^INRANGE
0000                    .ENDC
0000                    .IF     NB,ENDVA
0000                    MOVL    ENDVA,W^INRANGE+4
0000                    .ENDC
0000                    MOVZWL  STATUS,R3
0000                    MOVAL   INADR,R0
0000                    MOVAL   RETADR,R1
0000                    BSBW    CRETVASUBR
0000            NLIST
0000            .ENDM   CRETVA
0000
0000    ;*****************************************************************************
0000    ;         THIS MACRO DELETES THE CURRENT VA ADDRESSES.  ALSO HIDDEN IN THIS
0000    ;       MACRO IS A TEST TO SEE IF A DELETE GLOBAL SECTION MUST ALSO BE
0000    ;       INVOKED.  THIS OCCURS DURING THE SECOND AND THIRD RUNS OF THE TEST
0000    ;       PROGRAM WHEN GLOBAL SECTION MAPPING AND PFN MAPPING ARE USED.
0000    ;*****************************************************************************
0000    ;
0000            .MACRO  DELTVA STARTVA,ENDVA,STATUS=S^#SS$_NORMAL,-
0000                            INADR=W^INRANGE,RETADR=W^RETRANGE,?L1
0000            LIST
0000                    CMPW    W^WHICHRUN,#RUN1        ;IF USING MAPPED SECTIONS FOR TESTS,
0000                    BLEQ    L1                      ;DELETE SECTION AND THEN DO A DELTVA
0000                    $DGBLSC_S       -
0000                            GSDNAM=<W^GBLSECNAM>
0000    L1:
0000                    .IF     NB,STARTVA
0000                    MOVL    STARTVA,W^INRANGE
0000                    .ENDC
0000                    .IF     NB,ENDVA
0000                    MOVL    ENDVA,W^INRANGE+4
0000                    .ENDC
0000                    MOVZWL  STATUS,R3
0000                    MOVAL   INADR,R0
0000                    MOVAL   RETADR,R1
0000                    BSBW    DELTVASUBR
0000
0000            NLIST
0000            .ENDM   DELTVA
0000
```

```
0000  ;*************************************************************************
0000  ;       THIS MACRO USED TO CREATE PERMANENT GLOBAL SECTIONS.  THE FILE NAME
0000  ;       AND GBL SECTION DEVICE NAME ARE DECLARED INDEPENDANTLY OF THIS MACRO
0000  ;       AND ARE PUSHED ONTO THE STACK MANUALY BEFORE THE $CRMPSC SERVICE IS
0000  ;       CALLED.
0000  ;         ALSO NOTE THE TEMPORARY FIX LOCATED AT THE BOTTOM OF THE MACRO.  THE
0000  ;       FIX IS NEEDED BECAUSE THE LAST GLOBAL SECTION MAY NOT HAVE BEEN DELETED
0000  ;       BY THE TIME THE NEXT MAPPED SECTION IS CREATED.  IN THIS CASE THE
0000  ;       RETURNED ERROR IS TRAPPED AND THE SECTION IS REMAPPED UNTIL THE
0000  ;       SUCCESS CODE IS RETURNED.  THIS BUG IS SLATED TO BE FIXED.  WHEN THAT
0000  ;       IS ACCOMPLISHED REFER TO THE COMMENTS ABOVE THE FIX TO DETERMINE WHAT
0000  ;       LINES SHOULD BE REMOVED TO DELETE THE PATCH.
0000  ;*************************************************************************
0000  ;
0000          .MACRO  CREMAPSEC -
0000                  STARTVA              ,-
0000                  ENDVA                ,-
0000                  STATUS               ,-
0000                  INADR=<W^INRANGE>,-                    ;INPUT RANGE
0000                  RETADR=<W^RETRANGE>  ,-                ;RETURN RANGE
0000                  FLAGS=#0             ,-                ;SECTION FLAGS
0000                  GSDNAM=<W^GBLSECNAM>,-                 ;GLOBAL SECTION NAME
0000                  RELPAG=#0            ,-                ;RELATIVE PAGE
0000                  FILNAM=<W^FILENAME>,-                  ;FILE NAME
0000                  PAGCNT=#0            ,-                ;MAX SIZE OF SECTION
0000                  VBN=#0               ,-                ;STARTING WIRT BLK NO. IN FILE
0000                  ?L1
0000          LIST
0000                  .IF     NB,STARTVA
0000                  MOVL    STARTVA,W^INRANGE
0000                  .ENDC
0000                  .IF     NB,ENDVA
0000                  MOVL    ENDVA,W^INRANGE+4
0000                  .ENDC
0000                  MOVZWL  STATUS,R3
0000  L1:
0000                  PUSHL   VBN
0000                  PUSHL   PAGCNT
0000                  $PUSHADR        FILNAM
0000                  PUSHL   RELPAG
0000                  $PUSHADR        GSDNAM
0000                  PUSHL   FLAGS
0000                  $PUSHADR        RETADR
0000                  $PUSHADR        INADR
0000                  CALLS   #8,LIB$_CREMAPSEC
0000  ;*******
0000  ;IN ORDER TO DELTE THE PATCH MFNTIONED ABOVE SIMPLY REMOVE THE LINES FROM
0000  ;HERE TO THE NEXT SET OF ASTERICS.
0000  ;
0000                  CMPL    #^X1828A,R0            ;IF PREVIOUS GBL SECTION HASN'T
0000                  BEQL    L1                     ;BEEN DELETED TRY CREMAPSEC AGAIN.
0000  ;*******
0000                  MOVAL   W^CRMPSCERR,R1
0000                  BSBW    CHECK1
0000          NLIST
0000          .ENDM   CREMAPSEC
0000
```

```
0000  ;*******************************************************************************
0000  ;           THIS MACRO IS USED TO DETERMINE WHETHER THE MAKEVA SHOULD BE
0000  ;       TRANSLATED INTO A $CRETVA, A $CRMPSC USING GLOBLAL SECTIONS,
0000  ;       OR A $CRMPSC USING PFN MAPPING.  THE DECISION IS BASED UPON WHICH
0000  ;       RUN THE PROGRAM IS CURRENTLY IN.
0000  ;         ALSO NOTE THAT THE FIX THAT WAS APPLIED TO $CRMPSC MACRO LOCATED
0000  ;       ABOVE, WAS ALSO APPLIED TO THE $CRMPSC CALL LOCATED IN THE THIRD
0000  ;       PART OF THIS MACRO.  UPON THE FIX OF THIS BUG REFER TO THE
0000  ;       FIXED AREA TO FIND OUT WHAT MUST BE DELETED IN ORDER TO GET RID
0000  ;       OF THE TEMPORARY PATCH.
0000  ;*******************************************************************************
0000  ;
0000          .MACRO MAKEVA   STARTVA,ENDVA,STAT=S^#SS$_NORMAL,?L1,?L2,?L10,?L20,-
0000                          ?L30,?L40
0000          LIST
0000                  CASEL W^WHICHRUN,#1,#RUNMAX
0000  L1:
0000                  .WORD L10-L1                            ;IF FIRST RUN USE CRETVA.
0000                  .WORD L20-L1                            ;IF SECOND USE GBL CREMAPSEC
0000                  .WORD L30-L1                            ;IF THIRD USE PFN MAPPING
0000  L10:
0000                  CRETVA STARTVA,ENDVA,STATUS=STAT
0000          LIST
0000                  BRW L40
0000  L20:
0000          CREMAPSEC STARTVA,ENDVA,STATUS=STAT,-
0000                  FLAGS=#<SEC$M_GBL!SEC$M_PERM!SEC$M_DZRO!SEC$M_WRT>,-
0000                  PAGCNT=#25
0000          LIST
0000                  BRW L40
0000  L30:
0000                  .IF     NB,STARTVA
0000                  MOVL    STARTVA,W^INRANGE
0000                  .ENDC
0000                  .IF     NB,ENDVA
0000                  MOVL    ENDVA,W^INRANGE+4
0000                  .ENDC
0000                  MOVZWL  STAT,R3
0000  L2:
0000          $CRMPSC_S               -
0000                  INADR=<W^INRANGE>,-
0000                  RETADR=<W^RETRANGE>,-
0000                  GSDNAM=<W^GBLSECNAM>,-
0000                  VBN=#0,-
0000                  FLAGS=#<SEC$M_GBL!SEC$M_PERM!SEC$M_PFNMAP!SEC$M_WRT>,-
0000                  PAGCNT=#25
0000  ;*****
0000  ;IN ORDER TO REMOVE THE TEMPORARY FIX EXPLAINED ABOVE REMOVE THE LINES
0000  ;STARTING FROM HERE AND EXTENDING THE THE NEXT SET OF ASTERICS.
0000  ;
0000                  CMPL    #^X1828A,R0             ;IF PREVIOUS GBL SECTION HASN'T
0000                  BEQL    L2                      ;BEEN DELETED TRY CREMAPSEC AGAIN.
0000  ;*****
0000                  MOVAL   W^CRMPSCERR,R1
0000                  BSBW    CHECK1
0000  L40:
0000          NLIST
```

```
                  0000          .ENDM   MAKEVA
                  0000
                  0000          .MACRO  RANGECHK ONOROFF
                  0000          LIST
                  0000          .IF     IDN <ONOROFF>,<OFF>
                  0000                  BICL    #CTL$M_RNGCHK,W^CTLFLG
                  0000          .IFF
                  0000                  BISL    #CTL$M_RNGCHK,W^CTLFLG
                  0000          .ENDC
                  0000          NLIST
                  0000          .ENDM   RANGECHK
                  0000
                  0000    ;
                  0000    ; EQUATED SYMBOLS:
                  0000    ;
                  0000          $SECDEF
                  0000          $SSDEF
                  0000          $PRTDEF
                  0000          $GBLINI
                  0000          $VIELD  CTL,0,<-                        ;DEFINE CONTROL BITS IN R3
                  0000                  <MEMLOOP,,MASK>,-               ;LOOP IN MEMORY WRITE LOOP
                  0000                  <TSTLOOP,,MASK>,-               ;REDO ENTIRE TEST FROM TOP
                  0000                  <PIDMSG,,MASK>,-                ;PUT PROCESS ID IN EACH TYPEOUT
                  0000                  <RNGCHK,,MASK>-                 ;ON IF CHECKING RETURN RANGE
                  0000          >
        00000010  0000          PRT$C_NONE=1@4
        00000002  0000          RUN2=2
        00000001  0000          RUN1=1
        00000003  0000          RUNMAX=3
                  0000    ;
                  0000    ; OWN STORAGE:
                  0000    ;
```

```
                        0000    370             .SBTTL  DATA STORAGE AND MESSAGE STRINGS
                    00000000    371             .PSECT  DATA0,PAGE,WRT,NOEXE
                        0000    372 INRANGE:
            00000008    0000    373             .BLKL   2
                        0008    374 RETRANGE:
            00000010    0008    375             .BLKL   2
            00000006    0010    376 CTLFLG: .LONG   CTL$M_TSTLOOP!CTL$M_PIDMSG
            00000018    0014    377 SAVEND: .BLKL   1
                        0018    378 HIGHP0ADR:
            0000001C    0018    379             .BLKL   1                               ;LAST BYTE ADDRESS IN P0 SPACE
            00000020    001C    380 PID:    .BLKL   1                               ;PROCESS ID
                        0020    381 MAXPASSCNT:
            00000003    0020    382             .LONG   3                               ;NUMBER OF PASSES TO RUN
                        0024    383 PASSCNT:
            00000028    0024    384             .BLKL   1                               ;PASS COUNTER
                        0028    385 MAXWHICHRUN:
            00000003    0028    386             .LONG   3                               ;NUMBER OF RUNS
                        002C    387 WHICHRUN:
            00000030    002C    388             .BLKL   1                               ;WHICH RUN COUNTER
                        0030    389 WRKSETLIM:
            00000034    0030    390             .BLKL   1                               ;RETURNED NEW WORKING SET LIMIT
                        0034    391 WRKSETDEF:
            0000004C    0034    392             .BLKL   6                               ;DEFAULT, MAX, MIN WORKING SET LIMIT
            0000003C    004C    393             WRKSETMAX=WRKSETDEF+8
            00000044    004C    394             WRKSETMIN=WRKSETDEF+16
                        004C    395 WRKSETMAXADD:
            00000050    004C    396             .BLKL   1                               ;WRKSETMAX-WRKSETDEF
                        0050    397 PREVPROT:
                        0050    398 FAB:    $FAB    FAC=PUT, FNA=OUTNAMADR, FNS=OUTNAMSIZ ;FAB FOR OUTPUT
                        00A0    399 RAB:    $RAB    FAB=FAB                         ;RECORD ACCESS BLOCK FOR OUTPUT
            000000E8    00E4    400 MSGLEN: .BLKL   1                               ;RETURN LENGTH FROM FAO
   00000106'000000A0'   00E8    401 MSGBUFD:.LONG   MSGBUFSIZ,MSGBUF                ;MESSAGE BUFFER DESCRIPTOR
                        00F0    402 PIDMSGD:
   00000102'00000004'   00F0    403             .LONG   MSGBUF-PIDMSG,PIDMSG
                        00F8    404 ;
                        00F8    405 ; ***** DO NOT SEPARATE OR REORDER THE FOLLOWING LINES
                        00F8    406 ;
                        00F8    407 MSGBUFID:
                  0A 0D 00F8    408 CRLF:   .BYTE   ^015,^012
 20 53 53 45 43 4F 52 50 00FA   409             .ASCII  $PROCESS $
             20 20 20 20 0102   410 PIDMSG: .ASCII  $    $
            000001A6    0106    411 MSGBUF: .BLKB   160                             ;MESSAGE BUFFER USED BY FAO
            000000A0    01A6    412             MSGBUFSIZ=.-MSGBUF
                        01A6    413 ;
                        01A6    414 ; ***** DO NOT SEPARATE OR REORDER THE PRECEEDING LINES
                        01A6    415 ;
                        01A6    416
```

```
                            00000000  418           .PSECT  CODE,PAGE,NOWRT,EXE
                                0000  419
                                0000  420 OUTNAMADR:
      54 55 50 54 55 4F 24 53 59 53   0000  421           .ASCII  /SYS$OUTPUT/
                            0000000A  000A  422           OUTNAMSIZ=.-OUTNAMADR
                                000A  423
                                000A  424 CRETVAERRADR:
52 52 45 20 41 56 54 45 52 43 2F 21   000A  425           .ASCII  $!/CRETVA ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F   0016
41 57 20 53 55 54 41 54 53 20 2C 4C   0022
4C 55 4F 48 53 20 2C 4C 58 21 20 53   002E
            4C 58 21 20 45 42 20 44   003A
21 20 3D 20 52 44 41 4E 49 09 2F 21   0042  426           .ASCII  $!/     INADR = !XL - !XL,  RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58   004E
20 4C 58 21 20 3D 20 52 44 41 54 45   005A
               2F 21 4C 58 21 20 2D   0066
                            00000063  006D  427           CRETVAERRSIZ=.-CRETVAERRADR
                                006D  428
                                006D  429 DELTVAERRADR:
52 52 45 20 41 56 54 4C 45 44 2F 21   006D  430           .ASCII  $!/DELTVA ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F   0079
41 57 20 53 55 54 41 54 53 20 2C 4C   0085
4C 55 4F 48 53 20 2C 4C 58 21 20 53   0091
            4C 58 21 20 45 42 20 44   009D
21 20 3D 20 52 44 41 4E 49 09 2F 21   00A5  431           .ASCII  $!/     INADR = !XL - !XL,  RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58   00B1
20 4C 56 21 20 3D 20 52 44 41 54 45   00BD
               2F 21 4C 58 21 20 2D   00C9
                            00000063  00D0  432           DELTVAERRSIZ=.-DELTVAERRADR
                                00D0  433
                                00D0  434 CRMPSCERRADR:
52 52 45 20 43 53 50 4D 52 43 2F 21   00D0  435           .ASCII  $!/CRMPSC ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F   00DC
41 57 20 53 55 54 41 54 53 20 2C 4C   00E8
4C 55 4F 48 53 20 2C 4C 58 21 20 53   00F4
            4C 58 21 20 45 42 20 44   0100
21 20 3D 20 52 44 41 4E 49 09 2F 21   0108  436           .ASCII  $!/     INADR = !XL - !XL,  RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58   0114
20 4C 58 21 20 3D 20 52 44 41 54 45   0120
               2F 21 4C 58 21 20 2D   012C
                            00000063  0133  437           CRMPSCERRSIZ=.-CRMPSCERRADR
                                0133  438
                                0133  439 LKWSETERRADR:
52 52 45 20 54 45 53 57 4B 4C 2F 21   0133  440           .ASCII  $!/LKWSET ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F   013F
41 57 20 53 55 54 41 54 53 20 2C 4C   014B
4C 55 4F 48 53 20 2C 4C 58 21 20 53   0157
            4C 58 21 20 45 42 20 44   0163
21 20 3D 20 52 44 41 4E 49 09 2F 21   016B  441           .ASCII  $!/     INADR = !XL - !XL,  RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58   0177
20 4C 58 21 20 3D 20 52 44 41 54 45   0183
               2F 21 4C 58 21 20 2D   018F
                            00000063  0196  442           LKWSETERRSIZ=.-LKWSETERRADR
                                0196  443
                                0196  444 ULWSETERRADR:
52 52 45 20 54 45 53 57 4C 55 2F 21   0196  445           .ASCII  $!/ULWSET ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F   01A2
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41 57 20 53 55 54 41 54 53 20 2C 4C  01AE
4C 55 4F 48 53 20 2C 4C 58 21 20 53  01BA
            4C 58 21 20 45 42 20 44  01C6
21 20 3D 20 52 44 41 4E 49 09 2F 21  01CE   446          .ASCII  $!/     INADR = !XL - !XL,  RETADR = !XL - !XL!/$
52 20 20 2C 4C 58 21 20 2D 20 4C 58  01DA
20 4C 58 21 20 3D 20 52 44 41 54 45  01E6
            2F 21 4C 58 21 20 2D     01F2
                         00000063    01F9   447          ULWSETERRSIZ=.-ULWSETERRADR
                                     01F9   448
                                     01F9   449  CNTREGERRADR:
52 52 45 20 47 45 52 54 4E 43 2F 21  01F9   450          .ASCII  $!/CNTREG ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F  0205
41 57 20 53 55 54 41 54 53 20 2C 4C  0211
4C 55 4F 48 53 20 2C 4C 58 21 20 53  021D
            4C 58 21 20 45 42 20 44  0229
20 3D 20 54 4E 43 47 41 50 09 2F 21  0231   451          .ASCII  $!/     PAGCNT = !UL, REGION = P!UB SPACE, $
20 4E 4F 49 47 45 52 20 2C 4C 55 21  023D
45 43 41 50 53 20 42 55 21 50 20 3D  0249
                              20 2C  0255
4C 58 21 20 3D 20 52 44 41 54 45 52  0257   452          .ASCII  $RETADR = !XL - !XL!/$
            2F 21 4C 58 21 20 2D 20  0263
                         00000072    026B   453          CNTREGERRSIZ=.-CNTREGERRADR
                                     026B   454
                                     026B   455  EXPREGERRADR:
52 52 45 20 47 45 52 50 58 45 2F 21  026B   456          .ASCII  $!/EXPREG ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
58 21 20 3D 20 43 50 20 2D 20 52 4F  0277
41 57 20 53 55 54 41 54 53 20 2C 4C  0283
4C 55 4F 48 53 20 2C 4C 58 21 20 53  028F
            4C 58 21 20 45 42 20 44  029B
20 3D 20 54 4E 43 47 41 50 09 2F 21  02A3   457          .ASCII  $!/     PAGCNT = !SL, REGION = P!UB SPACE, $
20 4E 4F 49 47 45 52 20 2C 4C 53 21  02AF
45 43 41 50 53 20 42 55 21 50 20 3D  02BB
                              20 2C  02C7
4C 58 21 20 3D 20 52 44 41 54 45 52  02C9   458          .ASCII  $RETADR = !XL - !XL!/$
            2F 21 4C 58 21 20 2D 20  02D5
                         00000072    02DD   459          EXPREGERRSIZ=.-EXPREGERRADR
                                     02DD   460
                                     02DD   461  ADJWSLERRADR:
52 45 20 20 4C 53 57 4A 44 41 2F 21  02DD   462          .ASCII  $!/ADJWSL  ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
21 20 3D 20 43 50 20 2D 20 52 4F 52  02E9
57 20 53 55 54 41 54 53 20 2C 4C 58  02F5
55 4F 48 53 20 2C 4C 58 21 20 53 41  0301
            4C 58 21 20 45 42 20 44 4C  030D
20 3D 20 54 4E 43 47 41 50 09 2F 21  0316   463          .ASCII  $!/     PAGCNT = !SL, LIMIT WAS !UW, SHOULD BE !UW!/$
57 20 54 49 4D 49 4C 20 2C 4C 53 21  0322
55 4F 48 53 20 2C 57 55 21 20 53 41  032E
   2F 21 57 55 21 20 45 42 20 44 4C  033A
                         00000068    0345   464          ADJWSLERRSIZ=.-ADJWSLERRADR
                                     0345   465
                                     0345   466  WSETLMCTLADR:
45 53 20 47 4E 49 4B 52 4F 57 2F 21  0345   467          .ASCII  $!/WORKING SET SIZE/LOCKED LIMITS:  $
45 4B 43 4F 4C 2F 45 5A 49 53 20 54  0351
   20 20 3A 53 54 49 4D 49 4C 20 44  035D
2F 4C 55 21 20 54 4C 55 41 46 45 44  0368   468          .ASCII  $DEFAULT !UL/!UL, MAX !UL/!UL, MIN !UL/!UL!/$
4C 55 21 20 58 41 4D 20 2C 4C 55 21  0374
55 21 20 4E 49 4D 20 2C 4C 55 21 2F  0380
            2F 21 4C 55 21 2F 4C     038C
```

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                             0000004E  0393    469          WSETLMCTLSIZ=.-WSETLMCTLADR
                                       0393    470
                                       0393    471 READERRADR:
4F 52 52 45 20 44 41 45 52 20 2F 21    0393    472          .ASCII  $!/ READ ERROR - LOCATION = !XL !/$
4E 4F 49 54 41 43 4F 4C 20 2D 20 52    039F
         2F 21 20 4C 58 21 20 3D 20    03AB
                             00000021  03B4    473          READERRSIZ=.-READERRADR
                                       03B4    474
                                       03B4    475 NOREADERRADR:
45 20 44 41 45 52 2D 4F 4E 20 2F 21    03B4    476          .ASCII  $!/ NO-READ ERROR - LOCATION = !XL !/$
54 41 43 4F 4C 20 2D 20 52 4F 52 52    03C0
2F 21 20 4C 58 21 20 3D 20 4E 4F 49    03CC
                             00000024  03D8    477          NOREADERRSIZ=.-NOREADERRADR
                                       03D8    478
                                       03D8    479 WRITERRADR:
52 52 45 20 45 54 49 52 57 20 2F 21    03D8    480          .ASCII  $!/ WRITE ERROR - LOCATION = !XL !/$
4F 49 54 41 43 4F 4C 20 2D 20 52 4F    03E4
      2F 21 20 4C 58 21 20 3D 20 4E    03F0
                             00000022  03FA    481          WRITERRSIZ=.-WRITERRADR
                                       03FA    482
                                       03FA    483 NOWRITERRADR:
20 45 54 49 52 57 2D 4F 4E 20 2F 21    03FA    484          .ASCII  $!/ NO-WRITE ERROR - LOCATION = !XL !/$
41 43 4F 4C 20 2D 20 52 4F 52 52 45    0406
21 20 4C 58 21 20 3D 20 4E 4F 49 54    0412
                                  2F   041E
                             00000025  041F    485          NOWRITERRSIZ=.-NOWRITERRADR
                                       041F    486
                                       041F    487 MEMLOOPCTLADR:
4F 4F 4C 20 59 52 4F 4D 45 4D 2F 21    041F    488          .ASCII  $!/MEMORY LOOP ERRORS
               52 4F 52 52 45 20 50    042B
43 4F 4C 42 20 45 4C 49 46 09 2F 21    0432    489          .ASCII  $!/     FILE BLOCK      WAS !XL, SHOULD BE !XL$
53 20 2C 4C 58 21 20 53 41 57 09 4B    043E
4C 58 21 20 45 42 20 44 4C 55 4F 48    044A
44 41 20 59 52 4F 4D 45 4D 09 2F 21    0456    490          .ASCII  $!/     MEMORY ADR      WAS !XL, SHOULD BE !XL$
53 20 2C 4C 58 21 20 53 41 57 09 52    0462
4C 58 21 20 45 42 20 44 4C 55 4F 48    046E
49 20 53 53 45 43 4F 52 50 09 2F 21    047A    491          .ASCII  $!/     PROCESS ID      WAS !XL, SHOULD BE !XL$
53 20 2C 4C 58 21 20 53 41 57 09 44    0486
4C 58 21 20 45 42 20 44 4C 55 4F 48    0492
                             0000007F  049E    492          MEMLOOPCTLSIZ=.-MEMLOOPCTLADR
                                       049E    493
                                       049E    494 RANGERRADR:
4E 41 52 20 4E 52 55 54 45 52 2F 21    049E    495          .ASCII  $!/RETURN RANGE ERROR - LOCATION = !XL$
4C 20 2D 20 52 4F 52 52 45 20 45 47    04AA
58 21 20 3D 20 4E 4F 49 54 41 43 4F    04B6
                                  4C   04C2
21 20 3D 20 52 44 41 4E 49 09 2F 21    04C3    496          .ASCII  $!/     INADR = !XL - !XL, RETADR = !XL - !XL!/$
45 52 20 2C 4C 58 21 20 2D 20 4C 58    04CF
2D 20 4C 58 21 20 3D 20 52 44 41 54    04DB
               2F 21 4C 58 21 20       04E7
                             0000004F  04ED    497          RANGERRSIZ=.-RANGERRADR
                                       04ED    498
                                       04ED    499 IDMSGADR:
4E 41 4D 20 59 52 4F 4D 45 4D 2F 21    04ED    500          .ASCII  $!/MEMORY MANAGEMENT SERVICES TEST #7 (XQUOTA), PASS !UL!/$
56 52 45 53 20 54 4E 45 4D 45 47 41    04F9
37 23 20 54 53 45 54 20 53 45 43 49    0505
50 20 2C 29 41 54 4F 55 51 58 28 20    0511
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         2F 21 4C 55 21 20 53 53 41  051D
                           00000039  0526     501             IDMSGSIZ=.-IDMSGADR
                                     0526     502
                                     0526     503 RUN1_MSGADR:
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21  0526     504             .ASCII  $!/   *****   TEST WILL NOW BE RUN USING REGULAR VA SPACE   *****$
4E 20 4C 4C 49 57 20 54 53 45 54 20  0532
53 55 20 4E 55 52 20 45 42 20 57 4F  053E
20 52 41 4C 55 47 45 52 20 47 4E 49  054A
2A 20 20 20 45 43 41 50 53 20 41 56  0556
                        2A 2A 2A 2A  0562
                           20 2F 21  0566     505             .ASCII  $!/ $
                           00000043  0569     506             RUN1_MSGSIZ=.-RUN1_MSGADR
                                     0569     507
                                     0569     508 RUN2_MSGADR:
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21  0569     509             .ASCII  $!/   *****   TEST WILL NOW BE RUN USING PERM GBL SECTIONS   *****$
4E 20 4C 4C 49 57 20 54 53 45 54 20  0575
53 55 20 4E 55 52 20 45 42 20 57 4F  0581
4C 42 47 20 4D 52 45 50 20 47 4E 49  058D
20 20 20 53 4E 4F 49 54 43 45 53 20  0599
                  2A 2A 2A 2A 2A  05A5
                           20 2F 21  05AA     510             .ASCII  $!/ $
                           00000044  05AD     511             RUN2_MSGSIZ=.-RUN2_MSGADR
                                     05AD     512
                                     05AD     513 RUN3_MSGADR:
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21  05AD     514             .ASCII  $!/   *****   TEST WILL NOW BE RUN USING PFN MAPPING   *****$
4E 20 4C 4C 49 57 20 54 53 45 54 20  05B9
53 55 20 4E 55 52 20 45 42 20 57 4F  05C5
50 50 41 4D 20 4E 46 50 20 47 4E 49  05D1
   2A 2A 2A 2A 2A 20 20 20 47 4E 49  05DD
                           20 2F 21  05E8     515             .ASCII  $!/ $
                           0000003E  05EB     516             RUN3_MSGSIZ=.-RUN3_MSGADR
                                     05EB     517
                                     05EB     518 PIDCTLADR:
                           4C 55 21  05EB     519             .ASCII  $!UL$
                           00000003  05EE     520             PIDCTLSIZ=.-PIDCTLADR
                                     05EE     521
                                     05EE     522 GBLSECNAMADR:
                  54 53 54 47 4D 4D  05EE     523             .ASCII  $MMGTST$
                           00000006  05F4     524             GBLSECNAMSIZ=.-GBLSECNAMADR
                                     05F4     525
                                     05F4     526 FILENAMEADR:
      54 41 44 2E 54 53 54 47 4D 4D  05F4     527             .ASCII  $MMGTST.DAT$
                           0000000A  05FE     528             FILENAMESIZ=.-FILENAMEADR
                                     05FE     529
```

```
                     05FE   ;
                     05FE   ; STRING DESCRIPTORS
                     05FE   ;
                     05FE           .ALIGN  LONG
                     0600
                     0600   CRETVAERR:
0000000A'00000063    0600           .LONG   CRETVAERRSIZ,CRETVAERRADR
                     0608   DELTVAERR:
0000006D'00000063    0608           .LONG   DELTVAERRSIZ,DELTVAERRADR
                     0610   CNTREGERR:
000001F9'00000072    0610           .LONG   CNTREGERRSIZ,CNTREGERRADR
                     0618   CRMPSCERR:
000000D0'00000063    0618           .LONG   CRMPSCERRSIZ,CRMPSCERRADR
                     0620   EXPREGERR:
0000026B'00000072    0620           .LONG   EXPREGERRSIZ,EXPREGERRADR
                     0628   LKWSETERR:
00000133'00000063    0628           .LONG   LKWSETERRSIZ,LKWSETERRADR
                     0630   ULWSETERR:
00000196'00000063    0630           .LONG   ULWSETERRSIZ,ULWSETERRADR
                     0638   ADJWSLERR:
000002DD'00000068    0638           .LONG   ADJWSLERRSIZ,ADJWSLERRADR
                     0640   WSETLMCTL:
00000345'0000004E    0640           .LONG   WSETLMCTLSIZ,WSETLMCTLADR
                     0648   READERR:
00000393'00000021    0648           .LONG   READERRSIZ,READERRADR
                     0650   NOREADERR:
000003B4'00000024    0650           .LONG   NOREADERRSIZ,NOREADERRADR
                     0658   WRITERR:
000003D8'00000022    0658           .LONG   WRITERRSIZ,WRITERRADR
                     0660   NOWRITERR:
000003FA'00000025    0660           .LONG   NOWRITERRSIZ,NOWRITERRADR
                     0668   MEMLOOPCTL:
0000041F'0000007F    0668           .LONG   MEMLOOPCTLSIZ,MEMLOOPCTLADR
                     0670   RANGERR:
0000049E'0000004F    0670           .LONG   RANGERRSIZ,RANGERRADR
                     0678   IDMSG:
000004ED'00000039    0678           .LONG   IDMSGSIZ,IDMSGADR
                     0680   RUN1_MSG:
00000526'00000043    0680           .LONG   RUN1_MSGSIZ,RUN1_MSGADR
                     0688   RUN2_MSG:
00000569'00000044    0688           .LONG   RUN2_MSGSIZ,RUN2_MSGADR
                     0690   RUN3_MSG:
000005AD'0000003E    0690           .LONG   RUN3_MSGSIZ,RUN3_MSGADR
                     0698   PIDCTL:
000005EB'00000003    0698           .LONG   PIDCTLSIZ,PIDCTLADR
                     06A0   GBLSECNAM:
000005EE'00000006    06A0           .LONG   GBLSECNAMSIZ,GBLSECNAMADR
                     06A8   FILENAME:
000005F4'0000000A    06A8           .LONG   FILENAMESIZ,FILENAMEADR
                     06B0
```

```
                        06B0          .SBTTL  INITIALIZATION
                        06B0  ;*******************************************************************************
                        06B0  ;PROGRAM DESCRIPTION:
                        06B0  ;
                        06B0  ;             THIS PROGRAM TESTS THE FOLLOWING SYSTEM SERVICES:
                        06B0  ;                     $CRETVA, $EXPREG
                        06B0  ;
                        06B0  ;             THE SYSTEM SERVICES ARE TESTED IN THE FOLLOWING MANNER. THE PROGRAM
                        06B0  ;           IS DESIGNED TO MAKE THREE RUNS.  EACH RUN MAKES THREE PASSES.  ON
                        06B0  ;           THE FIRST RUN WHEN A MAKEVA IS ENCOUNTERED IT IS REPLACED WITH A
                        06B0  ;           CRETVA. IT THEN MAKES THREE PASSES THROUGH THE PROGRAM DOING
                        06B0  ;           ALL THE POSSIBLE TESTS.  ON THE SECOND RUN THE MAKEVA IS ENCOUNTERED
                        06B0  ;           AND IS REPLACED WITH A $CRMPSC THAT MAPS A PERMANENT GLOBAL SECTION.
                        06B0  ;           FOR THE THIRD RUN, THE MAKVA IS REPLACED WITH A $CRMPSC THAT MAPS
                        06B0  ;           A PFN GLOBAL SECTION.  USING THIS APPROACH THE $CRMPSC SYSTEM SERVICE
                        06B0  ;           WAS ALSO ABLE TO BE TESTED AS ALL ERROR PATHS FOLLOWED WHEN USING
                        06B0  ;           NORMAL VA ARE ALSO APPLICABLE WHEN USING GBL SECTION MAPPING.
                        06B0  ;             FOR EACH OF THESE RUNS A MESSAGE IS SENT TO THE TERMINAL
                        06B0  ;           INFORMING THE OPERATOR AS TO WHICH OF THESE SUBTITUTE MAKEVA'S WILL
                        06B0  ;           BE USED FOR THAT SET OF PASSES.
                        06B0  ;
                        06B0  ;             REFER TO MASD$:[MMGTST.COM]MMGTST.RAP FOR FURTHER INFORMATION
                        06B0  ;           REGARDING JUST HOW COMPLETELY THE ABOVE MENTIONED SYSTEM SERVICES
                        06B0  ;           ARE TESTED BY THIS PROGRAM.
                        06B0  ;
                        06B0  ;         *NOTE:
                        06B0  ;             THERE IS A BUG IN $CRMPSC THAT WILL BE FIXED IN THE FUTURE.  UNTIL
                        06B0  ;           THIS FIX TAKES PLACE THERE AREA TEMPORARY PATCH'S LOCATED AT THE END
                        06B0  ;           OF THE CREMAPSEC MACRO AND MAKVA MACRO WHICH CIRCUMVENT THIS
                        06B0  ;           PROBLEM.  UPON CORRECTION OF THIS BUG REFER TO THESE ABOVE MENTIONED
                        06B0  ;           MACROS TO FIND OUT HOW TO REMOVE THESE TEMPORARY PATCHES.
                        06B0  ;             ALSO, THE FILE MMGTST.DAT, WHICH IS CREATED BY RUNNING MMGCRTFIL.MAR,
                        06B0  ;           IS NECESSARY TO RUN THIS PROGRAM AS IT IS REFERENCED BY CREMAPSEC.
                        06B0  ;
                        06B0  ;         *PRIVILEGES:
                        06B0  ;             IN ORDER TO RUN THIS PROGRAM YOU MUST HAVE IN YOUR POSSESION
                        06B0  ;           THE PRIVILEGES PRMGBL AND PFNMAP.
                        06B0  ;*******************************************************************************
                        06B0  ;
                        06B0  ; START HERE
                        06B0  ;
                  0000  06B0  START:  .WORD   0                               ;ENTRY MASK
                        06B2          $OPEN   W^FAB                           ;OPEN THE FILE "$OUTPUT"
           0E 50    E9  06BD          BLBC    R0,10$                          ;BRANCH IF ERROR
                        06C0          $CONNECT W^RAB                          ;CONNECT THE RECORD ACCESS BLOCK
           09 50    E8  06CB          BLBS    R0,20$
                        06CE  10$:    $EXIT_S R0                              ;EXIT WITH STATUS IN R0
                        06D7  20$:    $RESUME_S PID                           ;SET UP PROCESS ID
 50  0000001C'EF    3C  06E6          MOVZWL  PID,R0
                        06ED          $FAO_S  PIDCTL,MSGLEN,PIDMSGD,R0        ;INIT THE PROCESS ID STRING
     0000002C'EF    D4  0705          CLRL    WHICHRUN                        ;INIT THE RUN COUNT TO ZERO
                        070B
                        070B
                        070B  MAIN_PROGRAM:
                        070B  ;*******************************************************************************
                        070B  ;           THIS COUNTER IS USED TO DETERMINE WHICH CRMPSC IS TO BE
                        070B  ;           REFERENCED, OR IF THE CRETVA IS TO BE USED, WHEN A MAKEVA
```

```
                              070B     ;       IS ENCOUNTERED.
                              070B     ;*********************************************************************
                              070B
          0024'CF    01   D0  070B             MOVL    #1,W^PASSCNT                       ;INITIALIZE THE PASS COUNT
     0C 002C'CF    0028'CF F3 0710             AOBLEQ  W^MAXWHICHRUN,W^WHICHRUN,PRESTART
                              0718
                              0718     END:
               50    01   9A  0718             MOVZBL  #SS$_NORMAL,R0
                              071B             $EXIT_S RO
                              0724
                              0724     PRESTART:
    03    01    002C'CF   CF  0724             CASEL   W^WHICHRUN,#1,#RUNMAX
                              072A     L50:
                        0006' 072A             .WORD   CRETVA_MESSAGE-L50                 ;FOR EACH RUN PRINT MESSAGE
                        0022' 072C             .WORD   GBL_SEC_MESSAGE-L50                ;DESCRIBING WHICH VA SPACE
                        0043' 072E             .WORD   PFNMAP_MESSAGE-L50                 ;IS BEING USED.
                              0730
                              0730     CRETVA_MESSAGE:
                              0730             $FAO_S  RUN1_MSG,MSGLEN,MSGBUFD
                 03F5    30   0747             BSBW    TYPEMSGBUF
                   40    11   074A             BRB     RSTART
                              074C
                              074C     GBL_SEC_MESSAGE:
          0010'CF    04   C8  074C             BISL    #CTL$M_PIDMSG,W^CTLFLG             ;ALLOW PROCESS ID TO PRINT
                              0751             $FAO_S  RUN2_MSG,MSGLEN,MSGBUFD
                 03D4    30   0768             BSBW    TYPEMSGBUF
                   1F    11   076B             BRB     RSTART
                              076D
                              076D     PFNMAP_MESSAGE:
          0010'CF    04   C8  076D             BISL    #CTL$M_PIDMSG,W^CTLFLG             ;ALLOW PROCESS ID TO PRINT
                              0772             $FAO_S  RUN3_MSG,MSGLEN,MSGBUFD
                 03B3    30   0789             BSBW    TYPEMSGBUF
                              078C
                              078C     RSTART:
                              078C             RANGECHK ON
          0010'CF    08   C8  078C                     BISL    #CTL$M_RNGCHK,W^CTLFLG
          0010'CF    04   CA  0791             BICL    #CTL$M_PIDMSG,W^CTLFLG             ;STOP PROCESS ID FROM PRINTING
                              0796             $FAO_S  IDMSG,MSGLEN,MSGBUFD,PASSCNT
                 0389    30   07B3             BSBW    TYPEMSGBUF
                              07B6             EXPREG  #1
               53    01   3C  07B6                     MOVZWL  S^#SS$_NORMAL,R3
               54    01   D0  07B9                     MOVL    #1,R4
          51   0008'CF    DE  07BC                     MOVAL   W^RETRANGE,R1
                     55   D4  07C1                     CLRL    R5
                 0243    30   07C3                     BSBW    EXPREGSUBR
          52   0008'CF    7D  07C6             MOVQ    W^RETRANGE,R2
          0000'CF    52   7D  07CB             MOVQ    R2,W^INRANGE
          0014'CF    52   D0  07D0             MOVL    R2,W^SAVEND
                              07D5             DELTVA
          01   002C'CF    B1  07D5                     CMPW    W^WHICHRUN,#RUN1           ;IF USING MAPPED SECTIONS FOR TESTS,
                     0F   15  07DA                     BLEQ    30000$                     ;DELETE SECTION AND THEN DO A DELTVA
                     00   DD  07DC                     PUSHL   #0
              FEBE   CF   7F  07DE                     PUSHAQ  W^GBLSECNAM
                     00   DD  07E2                     PUSHL   #0
       00000000'GF   03   FB  07E4                     CALLS   #3,G^SYS$DGBLSC
                              07EB     30000$:
               53    01   3C  07EB                     MOVZWL  S^#SS$_NORMAL,R3
```

```
        50   0000'CF   DE  07EE              MOVAL   W^INRANGE,R0
        51   0008'CF   DE  07F3              MOVAL   W^RETRANGE,R1
                015F   30  07F8              BSBW    DELTVASUBR
                           07FB   682
                           07FB   683
```

```
                             07FB        .SBTTL  FORCE ERRORS IN CRETVA
                             07FB   ;
                             07FB   ; FORCE ERRORS FROM CRETVA
                             07FB   ;
                             07FB   ;*********************************************************************
                             07FB   ;           THIS MAKEVA IS NOT AVAILABLE FOR THE SECOND RUN, WHEN PERM
                             07FB   ;        GLOBAL SECTIONS ARE USED, AS IN ORDER FOR THE EXPECTED ERROR TO
                             07FB   ;        BE RETURNED THE PAGES MUST BE CRF AND SINCE SHARED MEMORY TESTING
                             07FB   ;        IS POSSIBLE WITH THIS TEST (AND CRF IS NOT PERMITTED WITH SHARED
                             07FB   ;        MEMORY) THIS SECTION WAS BYPASSED FOR THAT REASON.
                             07FB   ;*********************************************************************
                             07FB   ;
        02   002C'CF    B1   07FB            CMPW    W^WHICHRUN,#RUN2
                  03    12   0800            BNEQ    10$
                00F2    31   0802            BRW     REROUTE
                             0805   10$:
                             0805
                             0805            MAKEVA  W^SAVEND,#1@30-1,#SS$_EXQUOTA   ;EXCEED PAGE FILE QUOTA
   03   01   002C'CF    CF   0805                    CASEL W^WHICHRUN,#1,#RUNMAX
                             080B   30001$:
                       0006' 080B                    .WORD 30003$-30001$                        ;IF FIRST RUN USE CRETVA.
                       0029' 080D                    .WORD 30004$-30001$                        ;IF SECOND USE GBL CREMAPSEC
                       0073' 080F                    .WORD 30005$-30001$                        ;IF THIRD USE PFN MAPPING
                             0811   30003$:
    0000'CF    0014'CF  D0   0811                    MOVL    W^SAVEND,W^INRANGE
 0004'CF   3FFFFFFF 8F  D0   0818                    MOVL    #1@30-1,W^INRANGE+4
             53    1C   3C   0821                    MOVZWL  #SS$_EXQUOTA,R3
        50   0000'CF    DE   0824                    MOVAL   W^INRANGE,R0
        51   0008'CF    DE   0829                    MOVAL   W^RETRANGE,R1
                0115    30   082E                    BSBW    CRETVASUBR
                0096    31   0831                    BRW 30006$
                             0834   30004$:
    0000'CF    0014'CF  D0   0834                    MOVL    W^SAVEND,W^INRANGE
 0004'CF   3FFFFFFF 8F  D0   083B                    MOVL    #1@30-1,W^INRANGE+4
             53    1C   3C   0844                    MOVZWL  #SS$_EXQUOTA,R3
                             0847   30007$:
                  00    DD   0847                    PUSHL   #0
                  19    DD   0849                    PUSHL   #25
             FE59 CF    DF   084B                    PUSHAL  W^FILENAME
                  00    DD   084F                    PUSHL   #0
             FE4B CF    DF   0851                    PUSHAL  W^GBLSECNAM
         0000400D 8F    DD   0855                    PUSHL   #<SEC$M_GBL!SEC$M_PERM!SEC$M_DZRO!SEC$M_WRT>
             0008'CF    DF   085B                    PUSHAL  W^RETRANGE
             0000'CF    DF   085F                    PUSHAL  W^INRANGE
     00000000'EF   08   FB   0863                    CALLS   #8,LIB$_CREMAPSEC
      50   0001828A 8F  D1   086A                    CMPL    #^X1828A,R0                ;IF PREVIOUS GBL SECTION HASN'T
                  D4    13   0871                    BEQL    30007$                     ;BEEN DELETED TRY CREMAPSEC AGAIN.
        51   FDA1 CF    DE   0873                    MOVAL   W^CRMPSCERR,R1
                0119    30   0878                    BSBW    CHECK1
                004C    31   087B                    BRW 30006$
                             087E   30005$:
    0000'CF    0014'CF  D0   087E                    MOVL    W^SAVEND,W^INRANGE
 0004'CF   3FFFFFFF 8F  D0   0885                    MOVL    #1@30-1,W^INRANGE+4
             53    1C   3C   088E                    MOVZWL  #SS$_EXQUOTA,R3
                             0891   30002$:
                  7E    7C   0891                    CLRQ    -(SP)
                  00    DD   0893                    PUSHL   #0
                19   DD  0895                          PUSHL   #25
           7E   00   3C  0897                          MOVZWL  #0,-(SP)
                00   DD  089A                          PUSHL   #0
                00   DD  089C                          PUSHL   #0
           FDFE CF   7F  089E                          PUSHAQ  W^GBLSECNAM
       00014009 8F   DD  08A2                          PUSHL   #<SEC$M_GBL!SEC$M_PERM!SEC$M_PFNMAP!SEC$M_WRT>
                00   DD  08A8                          PUSHL   #0
           0008'CF   7F  08AA                          PUSHAQ  W^RETRANGE
           0000'CF   7F  08AE                          PUSHAQ  W^INRANGE
   00000000'GF  0C   FB  08B2                          CALLS   #12,G^SYS$CRMPSC
   50  0001828A 8F   D1  08B9                          CMPL    #^X1828A,R0             ;IF PREVIOUS GBL SECTION HASN'T
                CF   13  08C0                          BEQL    30002$                  ;BEEN DELETED TRY CREMAPSEC AGAIN.
      51   FD52 CF   DE  08C2                          MOVAL   W^CRMPSCERR,R1
              00CA   30  08C7                          BSBW    CHECK1
                         08CA            30006$:
 0000'CF   0008'CF   7D  08CA    703               MOVQ    W^RETRANGE,W^INRANGE
                         08D1    704               DELTVA                                  ;DELETE WHAT WE CREATED
      01   002C'CF   B1  08D1                          CMPW    W^WHICHRUN,#RUN1        ;IF USING MAPPED SECTIONS FOR TESTS,
                0F   15  08D6                          BLEQ    30008$                  ;DELETE SECTION AND THEN DO A DELTVA
                00   DD  08D8                          PUSHL   #0
           FDC2 CF   7F  08DA                          PUSHAQ  W^GBLSECNAM
                00   DD  08DE                          PUSHL   #0
   00000000'GF  03   FB  08E0                          CALLS   #3,G^SYS$DGBLSC
                         08E7            30008$:
           53   01   3C  08E7                          MOVZWL  S^#SS$_NORMAL,R3
      50   0000'CF   DE  08EA                          MOVAL   W^INRANGE,R0
      51   0008'CF   DE  08EF                          MOVAL   W^RETRANGE,R1
              0063   30  08F4                          BSBW    DELTVASUBR
                         08F7    705
                         08F7    706 REROUTE:
```

```
0B

Mo
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MO
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NP
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SY
LI
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```
                                    08F7             .SBTTL  FORCE ERRORS FROM EXPREG
                                    08F7       ;
                                    08F7       ; FORCE ERRORS FROM EXPREG
                                    08F7       ;
                                    08F7             EXPREG  #1@21-1,#0,STATUS=#SS$_EXQUOTA  ;EXCEED PAGE FILE QUOTA
                    53     1C   3C  08F7                     MOVZWL  #SS$_EXQUOTA,R3
         54   001FFFFF 8F   D0  08FA                     MOVL    #1@21-1,R4
            51   0008'CF   DE  0901                     MOVAL   W^RETRANGE,R1
                         55   D4  0906                     CLRL    R5
                       00FE   30  0908                     BSBW    EXPREGSUBR
      0000'CF    0008'CF   7D  090B             MOVQ    W^RETRANGE,W^INRANGE
                                    0912             DELTVA                                  ;DELETE WHAT WE CREATED
            01   002C'CF   B1  0912                     CMPW    W^WHICHRUN,#RUN1            ;IF USING MAPPED SECTIONS FOR TESTS,
                         0F   15  0917                     BLEQ    30009$                      ;DELETE SECTION AND THEN DO A DELTVA
                         00   DD  0919                     PUSHL   #0
                    FD81 CF   7F  091B                     PUSHAQ  W^GBLSECNAM
                         00   DD  091F                     PUSHL   #0
     00000000'GF         03   FB  0921                     CALLS   #3,G^SYS$DGBLSC
                                    0928          30009$:
                    53     01   3C  0928                     MOVZWL  S^#SS$_NORMAL,R3
            50   0000'CF   DE  092B                     MOVAL   W^INRANGE,R0
            51   0008'CF   DE  0930                     MOVAL   W^RETRANGE,R1
                       0022   30  0935                     BSBW    DELTVASUBR
                                    0938
                                    0938       ;
                                    0938       ;END OF LOOP
                                    0938       ;
   03 0024'CF    0020'CF   F3  0938             AOBLEQ  W^MAXPASSCNT,W^PASSCNT,160$
                       FDC8   31  0940   150$:    BRW     MAIN_PROGRAM
                                    0943
                       FE46   31  0943   160$:    BRW     RSTART
```

```
                        0946          .SBTTL  SUBROUTINES TO CALL THE SERVICES
                        0946    ;
                        0946    ; INPUT:
                        0946    ;
                        0946    ;       R0 = INADR
                        0946    ;       R1 = RETADR
                        0946    ;       R3 = DESIRED STATUS
                        0946    ;
                        0946    ; OUTPUT:
                        0946    ;
                        0946    ;       R2 PRESERVED
                        0946    ;
                        0946    CRETVASUBR:
                        0946            $CRETVA_S (R0),(R1)
51     FCA9 CF     DE   0953            MOVAL   W^CRETVAERR,R1                  ;ERROR CONTROL STRING
              3A   11   0958            BRB     CHECK1
                        095A    ;
                        095A    ; INPUT:
                        095A    ;
                        095A    ;       R0 = INADR
                        095A    ;       R1 = RETADR
                        095A    ;       R3 = DESIRED STATUS
                        095A    ;
                        095A    ; OUTPUT:
                        095A    ;
                        095A    ;       R2 PRESERVED
                        095A    ;
                        095A    DELTVASUBR:
                        095A            $DELTVA_S (R0),(R1)
51     FC9D CF     DE   0967            MOVAL   W^DELTVAERR,R1                  ;ERROR CONTROL STRING
              26   11   096C            BRB     CHECK1
                        096E    ;
                        096E    ; INPUT:
                        096E    ;
                        096E    ;       R0 = INADR
                        096E    ;       R1 = RETADR
                        096E    ;       R3 = DESIRED STATUS
                        096E    ;
                        096E    ; OUTPUT:
                        096E    ;
                        096E    ;       R2 PRESERVED
                        096E    ;
                        096E    LKWSETSUBR:
                        096E            $LKWSET_S (R0),(R1)
51     FCA9 CF     DE   097B            MOVAL   W^LKWSETERR,R1                  ;ERROR CONTROL STRING
              12   11   0980            BRB     CHECK1
                        0982    ;
                        0982    ; INPUT:
                        0982    ;
                        0982    ;       R0 = INADR
                        0982    ;       R1 = RETADR
                        0982    ;       R3 = DESIRED STATUS
                        0982    ;
                        0982    ; OUTPUT:
                        0982    ;
                        0982    ;       R2 PRESERVED
                        0982    ;
```

```
                          0982 ULWSETSUBR:
                          0982          $ULWSET_S (R0),(R1)
    51  FC9D CF    DE     098F          MOVAL   W^ULWSETERR,R1                  ;ERROR CONTROL STRING
                          0994 CHECK1:
         53   50   D1     0994          CMPL    R0,R3                           ;STATUS AS DESIRED
              57   13     0997          BEQL    10$                             ;BRANCH IF YES
    53  0244 8F    B1     0999          CMPW    #SS$_VASFULL,R3                 ;IF EXPECTING VIRTUAL ADDRESS SPACE
              05   12     099E          BNEQ    15$
         50   1C   B1     09A0          CMPW    #SS$_EXQUOTA,R0                 ;THEN EXCEEDS QUOTA MAY ALSO BE RETU
              48   13     09A3          BEQL    10$
                          09A5 15$:
         53   01   B1     09A5          CMPW    #SS$_NORMAL,R3                  ;IF EXPECTING NORMAL COMPLETION
              07   12     09A8          BNEQ    5$                              ;FOR CRMPSC, THEN GLOBAL SECTION
    50  0619 8F    B1     09AA          CMPW    #SS$_CREATED,R0                 ;CREATED MAY BE RETURNED
              3F   13     09AF          BEQL    10$
                          09B1
              54   DD     09B1 5$:      PUSHL   R4
     54   04 AE    D0     09B3          MOVL    4(SP),R4                        ;ADDRESS OF ERROR
                          09B7          $FAO_S  (R1),MSGLEN,MSGBUFD,R4,R0,R3,-
                          09B7                  INRANGE,INRANGE+4,RETRANGE,RETRANGE+4
              10   BA     09EA          POPR    #^M<R4>
            0150   30     09EC          BSBW    TYPEMSGBUF
                   05     09EF          RSB
                          09F0 10$:
            007F   31     09F0          BRW     RANGECHK                        ;GO CHECK THE RETURN RANGE
                          09F3 ;
                          09F3 ; INPUT:
                          09F3 ;
                          09F3 ;        R1 = RETADR
                          09F3 ;        R3 = DESIRED STATUS
                          09F3 ;        R4 = PAGCNT
                          09F3 ;        R5 = REGION
                          09F3 ;
                          09F3 ; OUTPUT:
                          09F3 ;
                          09F3 ;        R2 PRESERVED
                          09F3 ;
                          09F3 CNTREGSUBR:
                          09F3          $CNTREG_S R4,(R1),,R5
    51  FC0A CF    DE     0A02          MOVAL   W^CNTREGERR,R1                  ;ERROR CONTROL STRING
              14   11     0A07          BRB     CHECK2
                          0A09 ;
                          0A09 ; INPUT:
                          0A09 ;
                          0A09 ;        R1 = RETADR
                          0A09 ;        R3 = DESIRED STATUS
                          0A09 ;        R4 = PAGCNT
                          0A09 ;        R5 = REGION
                          0A09 ;
                          0A09 ; OUTPUT:
                          0A09 ;
                          0A09 ;        R2 PRESERVED
                          0A09 ;
                          0A09 EXPREGSUBR:
                          0A09          $EXPREG_S R4,(R1),,R5
    51  FC04 CF    DE     0A18          MOVAL   W^EXPREGERR,R1                  ;ERROR CONTROL STRING
                          0A1D CHECK2:
```

```
              53     50     D1   0A1D              CMPL     R0,R3                             ;STATUS AS DESIRED?
                     39     13   0A20              BEQL     10$                               ;BRANCH IF YES
                     56     DD   0A22              PUSHL    R6
              56   04 AE    D0   0A24              MOVL     4(SP),R6                          ;ADDRESS OF ERROR
                                 0A28              $FAO_S   (R1),MSGLEN,MSGBUFD,R6,R0,R3,R4,R5,-
                                 0A28                       RETRANGE,RETRANGE+4
            0040 8F         BA   0A53              POPR     #^M<R6>
                   00E5     30   0A57              BSBW     TYPEMSGBUF
                            05   0A5A              RSB
       0000'CF   0008'CF    D0   0A5B      10$:    MOVL     W^RETRANGE,W^INRANGE              ;MAKE INPUT RANGE LOOK LIKE CRETVA/D
                     54     D7   0A62              DECL     R4
              54     54  09 78   0A64              ASHL     #9,R4,R4
  0004'CF   0000'CF  54     C1   0A68              ADDL3    R4,W^INRANGE,W^INRANGE+4
                     00     11   0A70              BRB      RANGECHK                          ;AND CHECK THE RETURN RANGE
                                 0A72
                                 0A72      RANGECHK:
        73 0010'CF   03     E1   0A72              BBC      #CTL$V_RNGCHK,W^CTLFLG,40$        ;BRANCH IF RANGE CHECK IS DISABLED
                  70 50     E9   0A78              BLBC     R0,40$                            ;IF ERROR IN SERVICE, SKIP THE RANGE
              50   0000'CF  7D   0A7B              MOVQ     W^INRANGE,R0                      ;R0 = STARVA, R1 = ENDVA
              51     50     D1   0A80              CMPL     R0,R1                             ;WHICH DIRECTION?
                     12     1A   0A83              BGTRU    10$                               ;BRANCH IF BACKWARDS
                     04     1F   0A85              BLSSU    5$                                ;BRANCH IF FORWARDS
           0C 50     1E     E0   0A87              BBS      #30,R0,10$                        ;FOR EQUAL, P0 SPACE FORWARDS, P1 BA
                                 0A8B      ;
                                 0A8B      ; REQUESTED RANGE IS FORWARDS
                                 0A8B      ;
          50   01FF 8F      AA   0A8B      5$:     BICW     #^X1FF,R0                         ;FROM BYTE 0 OF STARTVA
          51   01FF 8F      A8   0A90              BISW     #^X1FF,R1                         ;THROUGH LAST BYTE OF ENDVA
                     0A     11   0A95              BRB      20$                               ;
                                 0A97      ;
                                 0A97      ; GOING BACKWARDS IN VIRTUAL ADDRESS SPACE
                                 0A97      ;
          50   01FF 8F      A8   0A97      10$:    BISW     #^X1FF,R0                         ;LAST BYTE OF STARTVA
          51   01FF 8F      AA   0A9C              BICW     #^X1FF,R1                         ;THROUGH FIRST BYTE OF ENDVA
          0008'CF    50     D1   0AA1      20$:    CMPL     R0,W^RETRANGE                     ;IS THIS WHAT WAS RETURNED?
                     07     12   0AA6              BNEQ     30$                               ;BRANCH IF NOT, ERROR
          000C'CF    51     D1   0AA8              CMPL     R1,W^RETRANGE+4                   ;THIS ONE OK TOO?
                     3C     13   0AAD              BEQL     40$                               ;BRANCH IF YES, RANGE OK
                     53     DD   0AAF      30$:    PUSHL    R3                                ;SAVE REGISTER
           53   04 AE       D0   0AB1              MOVL     4(SP),R3                          ;TO USE FOR ERROR PC
                                 0AB5              $FAO_S   <W^RANGERR>,MSGLEN,MSGBUFD,R3,-   ;FORMAT THE ERROR MESSAGE
                                 0AB5                       INRANGE,INRANGE+4,RETRANGE,RETRANGE+4
                     08     BA   0AE6              POPR     #^M<R3>                           ;RESTORE SAVE REGISTER
                   0054     30   0AE8              BSBW     TYPEMSGBUF                        ;OUTPUT THE ERROR MESSAGE
                            05   0AEB      40$:    RSB                                        ;AND RETURN
                                 0AEC      ;
                                 0AEC      ; INPUT:
                                 0AEC      ;
                                 0AEC      ;       R3 = DESIRED STATUS
                                 0AEC      ;       R4 = PAGCNT
                                 0AEC      ;       R5 = DESIRED LIMIT
                                 0AEC      ;       R6 = ADDRESS TO RETURN NEW WORKING SET LIMIT
                                 0AEC      ;
                                 0AEC      ; OUTPUT:
                                 0AEC      ;
                                 0AEC      ;       R2 PRESERVED
                                 0AEC      ;
```

```
                        0AEC   ADJWSLSUBR:
                        0AEC           $ADJWSL_S R4,(R6)
                        0AF7           IFNOWRT #4,(R6),10$                    ;SKIP WORKING SET LIMIT CHECK
                        0AFD                                                  ;IF NEW LIMIT WAS NOT RETURNED
               55   D5  0AFD           TSTL    R5                             ;ALSO SKIP THE CHECK
               05   13  0AFF           BEQL    10$                            ;IF ZERO WAS SPECIFIED
          66   55   B1  0B01           CMPW    R5,(R6)                        ;OTHERWISE CHECK DESIRED WORKING
                        0B04                                                  ;SET LIMIT AGAINST THAT RETURNED
               05   12  0B04           BNEQ    20$                            ;BRANCH IF ERROR
                        0B06   10$:
          53   50   D1  0B06           CMPL    R0,R3                          ;STATUS AS DESIRED?
               33   13  0B09           BEQL    30$                            ;BRANCH IF YES
                        0B0B   20$:
               57   DD  0B0B           PUSHL   R7
     57     04 AE   D0  0B0D           MOVL    4(SP),R7                       ;ADDRESS OF ERROR
                        0B11           $FAO_S  ADJWSLERR,MSGLEN,MSGBUFD,R7,R0,R3,-
                        0B11                   R4,WRKSETLIM,R5
               57 8ED0  0B38           POPL    R7
             0001   30  0B3B           BSBW    TYPEMSGBUF
                        0B3E   30$:
                    05  0B3E           RSB
```

```
                            0B3F          .SBTTL  MISCELLANEOUS SUBROUTINES
                            0B3F     ;
                            0B3F     ; TYPE A MESSAGE
                            0B3F     ;        MSGBUF IS THE ADDRESS OF THE BEGINNING OF THE STRING
                            0B3F     ;        MSGLEN CONTAINS THE SIZE (IN BYTES) OF THE STRING
                            0B3F     ;
                            0B3F     TYPEMSGBUF:
         50   00E4'CF   D0  0B3F          MOVL    W^MSGLEN,R0                    ;SIZE TO R0
         51   0106'CF   DE  0B44          MOVAL   W^MSGBUF,R1                    ;ADDRESS TO R1
      08 0010'CF   02   E1  0B49          BBC     #CTL$V_PIDMSG,W^CTLFLG,5$      ;BRANCH IF NO PROCESS ID REQUIRED
         51   00F8'CF   DE  0B4F          MOVAL   W^MSGBUFID,R1                  ;ADDRESS INCLUDING PID MSG
            50    0E'   C0  0B54          ADDL    S^#<MSGBUF-MSGBUFID>,R0        ;INCLUDE EXTRA BYTES IN COUNT
                            0B57     5$:
       00C8'CF     51   D0  0B57          MOVL    R1,W^RAB+RAB$L_RBF             ;SET BUFFER ADDRESS
       00C2'CF     50   B0  0B5C          MOVW    R0,W^RAB+RAB$W_RSZ             ;AND SIZE
                            0B61          $PUT    W^RAB                          ;OUTPUT THE MESSAGE
              01 50     E9  0B6C          BLBC    R0,20$
                        05  0B6F          RSB
                            0B70     20$:     $EXIT_S R0                         ;EXIT WOTH ERROR STATUS
                            0B79     ;
                            0B79     ; INPUTS:
                            0B79     ;
                            0B79     ;        0(SP) = ADDRESS OF ERROR
                            0B79     ;        R1 = ADDRESS OF FORMAT CONTROL STRING
                            0B79     ;
                            0B79     ; OUTPUTS:
                            0B79     ;
                            0B79     ;        R2 PRESERVED
                            0B79     ;
                            0B79     PROBERR:
                   55   DD  0B79          PUSHL   R5
            55  04 AE   D0  0B7B          MOVL    4(SP),R5
                            0B7F          $FAO_S  (R1),MSGLEN,MSGBUFD,R5
                   20   BA  0B96          POPR    #^M<R5>
                 FFA4   30  0B98          BSBW    TYPEMSGBUF
                        05  0B9B          RSB
                            0B9C
                            0B9C
                            0B9C     ;
                            0B9C     ; INPUT:
                            0B9C     ;
                            0B9C     ;        INRANGE CONTAINS INFINITE RANGE OF ADDRESSES PREVIOUSLY CREATED
                            0B9C     ;        RETRANGE CONTAINS A RANGE OF ADDRESSES
                            0B9C     ;        R10 CONTAINS ADDRESS TO STORE THE # OF PAGES SPANNED BY RETRANGE
                            0B9C     ;
                            0B9C     ; OUTPUT:
                            0B9C     ;
                            0B9C     ;        R10 UPDATED TO POINT AT NEXT LONG WORD
                            0B9C     ;
                            0B9C     MAXPAGLOCK:
                            0B9C          LKWSET  STATUS=#SS$_LKWSETFUL          ;LOCK AS MANY AS ALLOWED
         53   0194 8F   3C  0B9C                  MOVZWL  #SS$_LKWSETFUL,R3
         50   0000'CF   DE  0BA1                  MOVAL   W^INRANGE,R0
         51   0008'CF   DE  0BA6                  MOVAL   W^RETRANGE,R1
                 FDC0   30  0BAB                  BSBW    LKWSETSUBR
50   000C'CF   0008'CF  C3  0BAE          SUBL3   W^RETRANGE,W^RETRANGE+4,R0     ;NUMBER OF BYTES IN RANGE
                   24   13  0BB6          BEQL    20$                            ;BRANCH IF NONE LOCKED
```

```
50    50     F7 8F   78  0BB8             ASHL    #-9,R0,R0                     ;NUMBER OF PAGES -1
   8A    50     01   C1  0BBD             ADDL3   #1,R0,(R10)+                  ;STORE NUMBER OF PAGES
                         0BC1             RANGECHK OFF
    0010'CF     08   CA  0BC1                     BICL    #CTL$M_RNGCHK,W^CTLFLG
                         0BC6             ULWSET  INADR=W^RETRANGE              ;UNLOCK THE ONES THAT WERE LOCKED
          53    09   3C  0BC6                     MOVZWL  S^#SS$_WASSET,R3
    50    0008'CF    DE  0BC9                     MOVAL   W^RETRANGE,R0
    51    0008'CF    DE  0BCE                     MOVAL   W^RETRANGE,R1
                FDAC 30  0BD3                     BSBW    ULWSETSUBR
                         0BD6             RANGECHK ON
    0010'CF     08   C8  0BD6                     BISL    #CTL$M_RNGCHK,W^CTLFLG
                     05  0BDB             RSB
                8A   D4  0BDC       20$:  CLRL    (R10)+                        ;NO PAGES LOCKED
                     05  0BDE             RSB
                         0BDF
                         0BDF
                         0BDF             .END    START
```

```
$$.TAB                          = 000000A0 R       02          FILENAME                         000006A8 R       03
$$.TABEND                       = 000000E4 R       02          FILENAMEADR                      000005F4 R       03
$$.TMP                          = 00000000                     FILENAMESIZ                    = 0000000A
$$.TMP1                         = 00000001                     GBLSECNAM                        000006A0 R       03
$$.TMP2                         = 000000CF                     GBLSECNAMADR                     000005EE R       03
$$T1                            = 00000000                     GBLSECNAMSIZ                   = 00000006
$$T2                            = 00000004                     GBL_SEC_MESSAGE                  0000074C R       03
ADJWSLERR                         00000638 R       03          HIGHPOADR                        00000018 R       02
ADJWSLERRADR                      000002DD R       03          IDMSG                            00000678 R       03
ADJWSLERRSIZ                    = 00000068                     IDMSGADR                         000004ED R       03
ADJWSLSUBR                        00000AEC R       03          IDMSGSIZ                       = 00000039
BIT...                          = 00000004                     INRANGE                          00000000 R       02
CHECK1                            00000994 R       03          L50                              0000072A R       03
CHECK2                            00000A1D R       03          LIB$_CREMAPSEC                   ********      X  03
CNTREGERR                         00000610 R       03          LKWSETERR                        00000628 R       03
CNTREGERRADR                      000001F9 R       03          LKWSETERRADR                     00000133 R       03
CNTREGERRSIZ                    = 00000072                     LKWSETERRSIZ                   = 00000063
CNTREGSUBR                        000009F3 R       03          LKWSETSUBR                       0000096E R       03
CRETVAERR                         00000600 R       03          MAIN_PROGRAM                     0000070B R       03
CRETVAERRADR                      0000000A R       03          MAXPAGLOCK                       00000B9C R       03
CRETVAERRSIZ                    = 00000063                     MAXPASSCNT                       00000020 R       02
CRETVASUBR                        00000946 R       03          MAXWHICHRUN                      00000028 R       02
CRETVA_MESSAGE                    00000730 R       03          MEMLOOPCTL                       00000668 R       03
CRLF                              000000F8 R       02          MEMLOOPCTLADR                    0000041F R       03
CRMPSCERR                         00000618 R       03          MEMLOOPCTLSIZ                  = 0000007F
CRMPSCERRADR                      000000D0 R       03          MSGBUF                           00000106 R       02
CRMPSCERRSIZ                    = 00000063                     MSGBUFD                          000000E8 R       02
CTL$M_MEMLOOP                   = 00000001                     MSGBUFID                         000000F8 R       02
CTL$M_PIDMSG                    = 00000004                     MSGBUFSIZ                      = 000000A0
CTL$M_RNGCHK                    = 00000008                     MSGLEN                           000000E4 R       02
CTL$M_TSTLOOP                   = 00000002                     NOREADERR                        00000650 R       03
CTL$V_MEMLOOP                   = 00000000                     NOREADERRADR                     000003B4 R       03
CTL$V_PIDMSG                    = 00000002                     NOREADERRSIZ                   = 00000024
CTL$V_RNGCHK                    = 00000003                     NOWRITERR                        00000660 R       03
CTL$V_TSTLOOP                   = 00000001                     NOWRITERRADR                     000003FA R       03
CTLFLG                            00000010 R       02          NOWRITERRSIZ                   = 00000025
DELTVAERR                         00000608 R       03          OUTNAMADR                        00000000 R       03
DELTVAERRADR                      0000006D R       03          OUTNAMSIZ                      = 0000000A
DELTVAERRSIZ                    = 00000063                     PASSCNT                          00000024 R       02
DELTVASUBR                        0000095A R       03          PFNMAP_MESSAGE                   0000076D R       03
END                               00000718 R       03          PID                              0000001C R       02
EXPREGERR                         00000620 R       03          PIDCTL                           00000698 R       03
EXPREGERRADR                      0000026B R       03          PIDCTLADR                        000005EB R       03
EXPREGERRSIZ                    = 00000072                     PIDCTLSIZ                      = 00000003
EXPREGSUBR                        00000A09 R       03          PIDMSG                           00000102 R       02
FAB                               00000050 R       02          PIDMSGD                          000000F0 R       02
FAB$C_BID                       = 00000003                     PRESTART                         00000724 R       03
FAB$C_BLN                       = 00000050                     PREVPROT                         00000050 R       02
FAB$C_SEQ                       = 00000000                     PROBERR                          00000B79 R       03
FAB$C_VAR                       = 00000002                     PRT$C_NONE                     = 00000010
FAB$L_ALQ                       = 00000010                     RAB                              000000A0 R       02
FAB$L_FOP                       = 00000004                     RAB$B_RAC                      = 0000001E
FAB$V_CHAN_MODE                 = 00000002                     RAB$C_BID                      = 00000001
FAB$V_FILE_MODE                 = 00000004                     RAB$C_BLN                      = 00000044
FAB$V_LNM_MODE                  = 00000000                     RAB$C_SEQ                      = 00000000
FAB$V_PUT                       = 00000000                     RAB$L_CTX                      = 00000018
FAB$W_GBC                       = 0000C.48                     RAB$L_RBF                      = 00000028
```

```
RAB$L_ROP               = 00000004                  ULWSETSUBR            00000982 R     03
RAB$W_RSZ               = 00000022                  WHICHRUN              0000002C R     02
RANGECHK                  00000A72 R     03         WRITERR               00000658 R     03
RANGERR                   00000670 R     03         WRITERRADR            000003D8 R     03
RANGERRADR                0000049E R     03         WRITERRSIZ          = 00000022
RANGERRSIZ              = 0000004F                  WRKSETDEF             00000034 R     02
READERR                   00000648 R     03         WRKSETLIM             00000030 R     02
READERRADR                00000393 R     03         WRKSETMAX           = 0000003C R     02
READERRSIZ              = 00000021                  WRKSETMAXADD          0000004C R     02
REROUTE                   000008F7 R     03         WRKSETMIN           = 00000044 R     02
RETRANGE                  00000008 R     02         WSETLMCTL             00000640 R     03
RSTART                    0000078C R     03         WSETLMCTLADR          00000345 R     03
RUN1                    = 00000001                  WSETLMCTLSIZ        = 0000004E
RUN1_MSG                  00000680 R     03
RUN1_MSGADR               00000526 R     03
RUN1_MSGSIZ             = 00000043
RUN2                    = 00000002
RUN2_MSG                  00000688 R     03
RUN2_MSGADR               00000569 R     03
RUN2_MSGSIZ             = 00000044
RUN3_MSG                  00000690 R     03
RUN3_MSGADR               000005AD R     03
RUN3_MSGSIZ             = 0000003E
RUNMAX                  = 00000003
SAVEND                    00000014 R     02
SEC$M_DZRO              = 00000004
SEC$M_GBL               = 00000001
SEC$M_PERM              = 00004000
SEC$M_PFNMAP            = 00010000
SEC$M_WRT               = 00000008
SIZ...                  = 00000001
SS$_CREATED             = 00000619
SS$_EXQUOTA             = 0000001C
SS$_LKWSETFUL           = 00000194
SS$_NORMAL              = 00000001
SS$_VASFULL             = 00000244
SS$_WASSET              = 00000009
START                     000006B0 R     03
SYS$ADJWSL                ********  GX   03
SYS$CNTREG                ********  GX   03
SYS$CONNECT               ********  GX   03
SYS$CRETVA                ********  GX   03
SYS$CRMPSC                ********  GX   03
SYS$DELTVA                ********  GX   03
SYS$DGBLSC                ********  GX   03
SYS$EXIT                  ********  GX   03
SYS$EXPREG                ********  GX   03
SYS$FAO                   ********   X   03
SYS$LKWSET                ********  GX   03
SYS$OPEN                  ********  GX   03
SYS$PUT                   ********  GX   03
SYS$RESUME                ********  GX   03
SYS$ULWSET                ********  GX   03
TYPEMSGBUF                00000B3F R     03
ULWSETERR                 00000630 R     03
ULWSETERRADR              00000196 R     03
ULWSETERRSIZ            = 00000063
```

```
                                        +----------------+
                                        ! Psect synopsis !
                                        +----------------+

PSECT name                      Allocation          PSECT No.  Attributes
----------                      ----------          ---------  ----------
.  ABS  .                       00000000  (     0.)  00 (  0.)  NOPIC    USR    CON    ABS    LCL NOSHR NOEXE NORD   NOWRT NOVEC BYTE
$ABS$                           00000000  (     0.)  01 (  1.)  NOPIC    USR    CON    ABS    LCL NOSHR   EXE   RD     WRT NOVEC BYTE
DATA0                           000001A6  (   422.)  02 (  2.)  NOPIC    USR    CON    REL    LCL NOSHR NOEXE   RD     WRT NOVEC PAGE
CODE                            00000BDF  (  3039.)  03 (  3.)  NOPIC    USR    CON    REL    LCL NOSHR   EXE   RD   NOWRT NOVEC PAGE

                                        +------------------------+
                                        ! Performance indicators !
                                        +------------------------+

Phase                     Page faults    CPU Time        Elapsed Time
-----                     -----------    --------        ------------
Initialization                     18    00:00:00.06     00:00:01.31
Command processing                 89    00:00:00.80     00:00:05.45
Pass 1                            370    00:00:13.25     00:00:42.30
Symbol table sort                   0    00:00:01.28     00:00:04.04
Pass 2                            207    00:00:03.49     00:00:12.96
Symbol table output                22    00:00:00.17     00:00:01.22
Psect synopsis output               5    00:00:00.02     00:00:00.02
Cross-reference output              0    00:00:00.00     00:00:00.00
Assembler run totals              713    00:00:19.08     00:01:07.31

The working set limit was 1650 pages.
78987 bytes (155 pages) of virtual memory were used to buffer the intermediate code.
There were 50 pages of symbol table space allocated to hold 931 non-local and 30 local symbols.
980 source lines were read in Pass 1, producing 23 object records in Pass 2.
63 pages of virtual memory were used to define 52 macros.

                                        +----------------------------+
                                        ! Macro library statistics !
                                        +----------------------------+

Macro library name                         Macros defined
------------------                         --------------
_$255$DUA28:[SYS.OBJ]LIB.MLB;1                          1
_$255$DUA28:[SYSLIB]STARLET.MLB;2                      32
TOTALS (all libraries)                                 33

1185 GETS were required to define 33 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS$:MMGXQUOTA/OBJ=OBJ$:MMGXQUOTA MSRC$:MMGXQUOTA/UPDATE=(ENH$:MMGXQUOTA)+EXECML$/LIB
```

0236 AH-BT13A-SE
VAX/VMS V4.0

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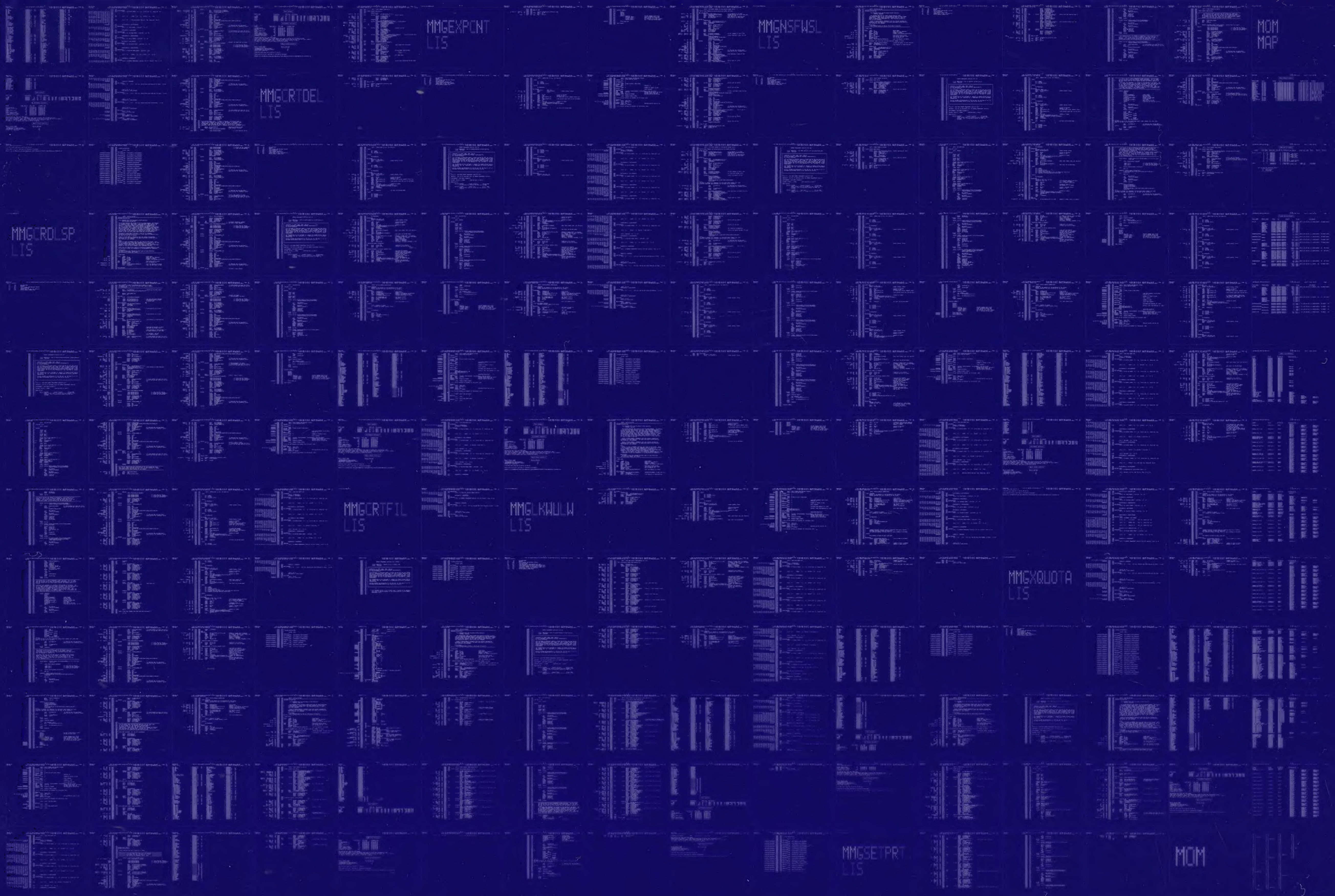

MMGEXPCNT
LIS

MMGNSFWSL
LIS

MOM
MAP

MMGCRTDEL
LIS

MMGCRDLSP
LIS

MMGCRTFIL
LIS

MMGLKWULW
LIS

MMGXQUOTA
LIS

MMGSETPRT
LIS

MOM